Steven L. Liebling

Updated April 4, 2022

Voice: (631) 846-4341
Fax: (516) 299-3944
Email: liebling@gmail.com
Web: http://relativity.liu.edu/steve

Department of Mathematics
C.W. Post Campus
Long Island University
Brookville, NY 11548 USA

Summary

- Professor, Long Island University with tenure (employed for last 21 years)
- Continuous grant funding from NSF since 1999, along with funding from NASA
- APS Fellow (2013) and Fulbright Global Scholar (2018)
- Third Prize in 2014 for the Buchalter Cosmology Prize competition
- More than 65 peer-reviewed publications & 60 invited talks with h-index of 38
- Primary developer and maintainer of various open source software packages
- Supervised postdoctoral, undergraduate, and high school students
- Ph.D. in physics from The Univ. of Texas at Austin in 1998 w/ a B.A. from Brown Univ. in 1993
- Previous guest appointments in Canada, Spain, BNL, etc.
- Administers a local cluster with continuous awards of supercomputing time on national resources

Current Positions

- *Professor* (tenured), Department of Physics, Long Island University, Brookville, NY. Fall 2008 to present

Honors and Awards

- Selected as a 2018-19 Fulbright Global Scholar.
- Third Prize in 2014 Buchalter Cosmology Prize 2014. For: *a significant advance in linking theoretical predictions with potentially observable signatures of bubble universes in a multiverse cosmology.*
- Abraham Krasnoff Memorial Award 2014. Post-LIU award for a single, scholarly work.
- Elected to APS Fellowship 2013. *For many contributions to numerical relativity, especially in the areas of critical gravitational collapse, black hole binaries with matter and magnetic fields as well as infrastructure development.*
- "Outstanding Referee" for the American Physical Society 2010.
- ITP Scholar (see Other Professional Experience) 2002-2004.
- Sigma Xi (Honor Society) 1993.
- Brown National Scholar 1989-1993.
- National Merit Scholar 1989-1993.

Education

- Ph.D. in Physics, 1998. The University of Texas at Austin, Austin, TX Advisor: Matthew W. Choptuik Dissertation Title: *Nonlinear Field Dynamics in General Relativity: Black Hole Critical Phenomena and Topological Defects*
- Master of Arts in Physics, 1995. The University of Texas at Austin, Austin, TX Thesis Title: *Massless Scalar Field Collapse in Brans-Dicke Theory*
- Bachelors of Arts in Physics, 1993. Brown University, Providence, RI

Research Grants

1. National Science Foundation (PI) [$209K] NSF PHY-2011383 *WoU-MMA: Aspects of Compact Object Mergers* September 2020-2023.
2. National Science Foundation (PI) [$40K] NSF PHY-1912769 *WoU-MMA: Compact Object Mergers in the Era of Multi-Messenger Astrophysics* September 2019-2020.
3. National Science Foundation (PI) [$92K] NSF PHY-1827573 *MRI Acquisition: High Performance Cluster for Multidisciplinary Research at Long Island University* September 2018–2020.
4. National Science Foundation (PI) [$180K/$310K] NSF PHY-1607291 *Collaborative Research: Compact Binary Mergers in the Advanced LIGO Era* Sept. 2016–2019
5. National Science Foundation (PI) [$180K/$540K] NSF PHY-1308621 *Collaborative Research: Loud, Bright, and Hot Compact Binary Mergers* Sept. 2013–2016
6. NASA (coPI) [$70K/Total $353K] NASA NNX13AH01G *Fully relativistic simulations of black holes and neutron stars with global magnetic fields* March 2013–2016
7. National Science Foundation (PI) [$140K/Total $420K] NSF PHY-0969827 *Collaborative Research: Dynamics and Gravitational Wave Production of Neutron Stars and Black Holes* Sept. 2010–2013
8. National Science Foundation (PI) [$15K/Total $155K] NSF CCF-0833090 *Collaborative Research: A Study and Implementation of Semantic Constructs for Highly Scalable Leading-Edge Scientific Computing* Jan. 2009–2010
9. National Science Foundation (PI) [$120K/Total $660K] NSF PHY-0803624 *Collaborative Research: Simulating Neutron Star—Black Hole Inspiral: From Binaries to Accretion and Jets* Sept. 2008–2011
10. National Science Foundation (PI) [$40K/Total $200K] NSF PHY-0653044 *Collaborative Research: Simulating Neutron Star—Black Hole Inspiral: From Binaries to Accretion and Jets* Sept. 2007–2008
11. National Science Foundation (PI) [$390K/Total $1.9M] NSF PHY-0325224 *Collaborative ITR: Rigorous techniques in computationalproblems with distributed adaptive mesh refinement* Sept. 2003–2007
12. National Science Foundation (PI) [$50K/Total $100K] NSF PHY-0139980 *Collaborative Research: Modeling Gravitational Collapse* May 2002–2004
13. National Science Foundation (PI) [$99K] NSF PHY-9900644 *Topics in Numerical Relativity*, November 1999–April 2002

Computing Resource Grants

1. *Modeling General Relativistic Astrophysics: Neutron Stars to Black Hole Formation*, Awarded, October 2007-'08, Renewed 2008-'09, '09-'10, '10-'11 (3M SUs), '11-'12, '12-'13, '13-'14, '14-'15 (1.4M SUs), 15'-16', '16-'17, '17-'18. M. Anderson, S.L. Liebling D. Neilsen.
2. *Modeling Neutron Stars, Boson Stars, and Black Holes*, Awarded, January 2008–present. S.L. Liebling on Brookhaven National Lab and Stony Brook University's *NewYorkBlue* BlueGene/L machine
3. *Novel implementation of Adaptive Mesh for numerical relativity*, PHY040027 & PHY040021, July 2005–2007. S.L. Liebling and L. Lehner, 50K SUs (2005) & 45K SUs (2006 and 93K Supplement) on TeraGrid Cluster
4. *Numerical Hydrodynamics of Mass-Transferring Binary Star Systems*, March 2004. J.E. Tohline, J. Frank, L. Lehner, & S.L. Liebling, 400K SUs on NCSA's `tungsten` 1280 node Xeon cluster
5. *Novel computational and numerical tech. for numerical relativity*, PHY040021, July 2004–2005. S.L. Liebling and L. Lehner, 25K SUs on TeraGrid Cluster
6. *Singularity Threshold Using Distributed AMR*, AST030002, Jan 2003–2004. S.L. Liebling, 5K SUs on U. of Michigan AMD Linux Cluster
7. *Using Dist. Adaptive Mesh Refinement for Threshold Behavior*, PHY030008N, March 2003–2004. S.L. Liebling, 5K SUs on IA-64 Linux Cluster & 5K SUs on IA-32 Linux Cluster

Other Professional Experience

- *External Researcher* Institute of Applied Computing with Community Code IAC^3 at Universitat de les Illes Balears Palma, Spain. Fall 2018 to 2020.

- *Visiting Professor* May-June 2016, Universitat de les Illes Balears Palma, Spain
- *Affiliate Scientist* 2007 to 2012 New York Center for Computational Science, SUNY Stony Brook, Stony Brook, NY
- *Visiting Professor* January-July 2012, Perimeter Institute for Theoretical Physics Waterloo, Canada
- *Associate Professor* Fall 2004 to 2008, C.W. Post Campus, Long Island University Brookville, NY
- *ITP Scholar* Spring 2002 to 2004, Institute for Theoretical Physics, UCSB Santa Barbara, CA
- *Assistant Professor* Fall 1998 to 2004, Southampton College, Long Island University Southampton, NY
- *Assistant Director* Spring 1999 to 2003, Technology Center, Southampton College Southampton, NY
- *Math/Physics Group Coordinator* Fall 2003 , Southampton College, Long Island University Southampton, NY
- *Guest Scientist* Fall 1998 to 2000, High Energy Theory Group, Brookhaven National Laboratory Upton, NY
- *Postdoctoral Fellow* May 1998 to Sept., 1998, The University of Texas at Austin Austin, TX,
- *Teaching Assistant* Spring 1991 Brown Computer Science Department Providence, RI,
- *Computer Programmer* Summers 1989 and 1999, I.B.M. Houston, TX

Select Program and Workshop Invitations

- Institute for Pure & Applied Mathematics (IPAM), UCLA, October 4-8, 2021, Los Angeles, CA. Invited Participant: Computational Challenges in Multi-Messenger Astrophysics
- Science Center, June 3-9, 2018 Benasque, Spain, Invited speaker: *Numerical Relativity beyond General Relativity*
- eXtreme Gravity Institute (XGI), Montana State Univ., August 17-19, 2017, Bozeman, MT. Invited Discussion Moderator: *eXtreme Matter meets eXtreme Gravity*
- Insitute for Nuclear Theory (INT), Univ. Washington, August 15, 2017, Seattle, WA. Invited Participant: *Electromagnetic Signatures of r-process Nucleosynthesis in Neutron Star Binary Mergers*
- Aspen Center for Physics, February 12-17, 2017, Aspen, CO. Invited Participant: *FRBs: New Probes of Fundamental Physics and Cosmology*
- Simons Center for Geometry and Physics, December 2016, Stony Brook, NY. Invited Participant: *The Universe through gravitational waves*
- Kavli Institute for Theoretical Physics, June-July 2015, UCSB, Santa Barbara, CA. Invited Participant: *Workshop for Theorists at Undergraduate Institutions*
- Institute for Nuclear Theory (INT), July 2014, University of Washington, WA. Invited Speaker Visiting Fellow: *Binary Neutron Star Coalescence as a Fundamental Physics Laboratory*
- DAMTP's Centre for Theoretical Cosmology (CTC), March 2014, University of Cambridge, UK. Invited Speaker: *New frontiers for gravitational dynamics*
- Princeton Center for Theoretical Science, May 2013, Princeton, NJ. Invited Participant & Session Chair: *Revealing Radiative Processes Near Black Holes*
- Kavli Institute for Theoretical Physics, August 2012, UCSB, Santa Barbara, CA. Invited Participant: *Chirps, Mergers and Explosions: The Final Moments of Coalescing Compact Binaries*
- Centre for Theoretical Cosmology (CTC), July 2012, University of Cambridge, UK. Invited Participant: *Numerical Cosmology 2012*
- Gravitational Wave Bursts Workshop, May 2012, Tobermory, Isle of Mull, Scotland. Discussion leader for "Modeling Compact Object Binaries" session
- Numerical relativity beyond astrophysics, July, 2011, International Centre for Mathematical Sciences, Edinburgh, Scotland. Invited Speaker: *Black Hole Critical Behavior in Axisymmetry*

Select Invited Talks

- Grav19, UNC, Cordoba, Argentina April 8-12, 2019 Invited speaker.
- CCNY High Energy Group Seminar, CCNY, NYCA, March 23, 2018. Invited speaker.
- The Dawning Era of Gravitational-Wave Astrophysics, Aspen Center for Physics, CO Feb 5-11, 2017 Invited speaker: Charged black holes and binaries in Multi-messenger Astronomy
- Cosmological Frontiers in Fundamental Physics 2016, Perimeter Inst., CA June 16, 2016 Invited speaker: Compact Objects in the Era of Gravitational Wave Astronomy

- AMS Sectional Meeting, Stony Brook, NY March 19, 2016 Invited speaker: *Recurrences and Islands of Stability in AdS*
- Conference in Mathematical General Relativity, Sanya, China January 5-9, 2016 Invited speaker: *Recurrences and Islands of Stability in spherically symmetric AdS*
- New York General Relativity Seminar, Columbia University, NY September 19, 2014 Invited speaker: *On the nonlinearly stability of AdS*
- Recent Progress in Hyperbolic Problems: Theory and Computation August 28, 2013 Invited talk at *Applied Mathematics, Modeling, and Computer Science* (AMMCS) Minisymposium, Waterloo, Canada
- A.P.S. April Meeting, Washington, DC February, 2010 *Status Report on Black Hole Critical Behavior*

Conference Organizing Experience

- Organizer of ICERM@Brown Univ. program: *A*dvances in Computational Relativity Fall 2020, Providence, RI.
- Organizer and host of 21$^{\text{st}}$ Eastern Gravity Meeting, May 24-25, 2018 Brooklyn, NY. Post-event press release.
- Focus Week organizer, June 2015 Proposal to Fields Institute: *Thematic Program for the Centenary of Einstein's Equations of General Relativity* with Poisson, Pfeiffer, Lehner, Dafermos, Alexakis.
- Organizer (Primary Contact), Fall '11, '12, & '13, Proposal to `BIRS`: *Twenty Years of Critical Phenomena in Gravity*, Declined. with Luis Lehner (Perimeter Inst.) and Frans Pretorius (Princeton).
- Sorter, January 19, 2007 A.P.S. April Meeting.

Professional Activities

APS DGRAV Fellowship Selection Committee	2019
Member of the *Stellar Mass Black Hole-Black Hole Binaries* subcommittee of NASA's Multi Messenger Astronomy Science Advisory Group	2018
3G Science Case Team Consortium	2017–2019
APS DCOMP 2018 Rahman Prize Selection Committee	2017
APS Topical Group in Gravitation: Nominating Committee	2012-2013
National Science Foundation (NSF) Panels	2006 & 2009 & 2010 & 2015 & 2016
Member of the Pacific Institute of Theoretical Physics' Collaborative Research Team:	
Gravity and Cosmology and Theor. Astrophysics	2003-present
Member of the Gravitational Wave Analysis Group:	
Black Hole Merger	2002-present
Member of The Inter. Soc. on General Rel. and Grav.	2004-present
Member of the American Physical Society (APS)	1995-present
Topical Group in Gravitation	2001-present
Division of Computational Physics	2006-present
Division of Astrophysics	2007-present
Proposal reviewer for science foundations:	
National Science Foundation (NSF)	*Austrian Science Fund (FWF)*
European Coop. in Science & Tech. (COST)	*DFG, German Research Foundation*
Dutch Research Council (NWO)	
Nat. Research, Dev. and Inn. Office (NKFIH) Hungary	2016, 2019
Journal Referee for:	
Physical Review Letters (an Outstanding Referee of 2010)	*Physical Review D*
Classical and Quantum Gravity	*SIAM Journal on Numerical Analysis*
International Journal of Modern Physics B & D	*Physica Scripta*
Modern Physics Letters A	*The Astrophysical Journal Letters*
Astronomy & Astrophysics	*JHEP*
Nature Communications	*General Relativity and Gravitation*
JCAP	*EPJC*
Particles	
PhD Dissertion Referee for:	
UIB, Spain	*IISER Pune, India*
Varsity Site Administrator (SGI Site License)	1998-2002

Outreach Activities

Fall Undergraduate Research Information Session	Brookville 2020
Eastern Gravity Meetings Judge for Blue Apple award	Princeton'11, RIT'15, UMassDartmouth'19
Midwest Gravity Meeting Judge for Blue Apple award	PI'16
Perimeter Institute, Waterloo, Canada Invited speaker: *Career Series: Panel Discussion*	September 21, 2012
Hewlett High School, Hewlett, NY Staff Development Day: *Discussions with C.W. Post Faculty*	November 8, 2011
C.W. Post Campus, L.I.U., NY Science Research Workshop: *Black Holes & Gravity on the Computer*	July 20, 2011
C.W. Post Campus, L.I.U., NY Common Hour Lunch Series: *Researching Black Holes*	March 28, 2011

Lynwood Avenue Elementary 5th Grade, Farmingville, NY — February 9, 2011
Observing the Electron

Girl Scouts, Farmingville, NY — March 23, 2010
Static Electricity Exercise

C.W. Post Campus, L.I.U., NY — November 6, 2009
Honors Program Conference, Introduce & Discuss the movie: *Blast!*

American Institute of Physics (AIP) — Fall 2009
Volunteer for the *Adopt a Scientist Program*

Lynwood Avenue Elementary, Farmingville, NY — February 1, 2008
Physics Demonstrations

C.W. Post Campus, L.I.U., NY — October 25, 2006
Brown Bag Seminar: *Simulating the Collision of Neutron Stars With Black Holes*

Topical Group on Gravitation — Fall 2005
Volunteer for the *World Year of Physics* Lectures

American Institute of Physics (AIP) — Fall 2005
Volunteer for the *Adopt a Scientist Program*

C.W. Post Campus, L.I.U., NY — November 4, 2005
Honors Program Conference Presenter: *Colliding Black Holes on the Computer*

C.W. Post Campus, L.I.U., NY — August 5, 2005
Freshman Orientation Faculty Lecturer: *Astronomy 101*

Long Island Science & Engineering Fair, NY — 2004 & 2005
Volunteer Judge

Southampton College, L.I.U., NY — November 13, 2002
Seminar: *What Do Black Holes Look Like Naked?*

Southampton College, L.I.U., NY — March 6, 2002
Seminar: *(Not) Boring Black Holes*

Press Coverage

- *New Scientist* July 12, 2017 "When is a black hole not a black hole? When it's a boson star"
- *Quanta Magazine* November 10, 2014 "Multiverse Collisions May Dot the Sky"
- *Physics World* October 6, 2011 "Relativity's new revolution"
- *Science Daily* July 20, 2011 "Movement of Black Holes Powers Quasars, the Universe's Brightest Lights"
- *SPACE.com* August 19, 2010 "Colliding Black Holes Should Unleash Detectable Energy Jets"
- *CBC News* August 19, 2010 "Radiation could pinpoint black hole merger"
- *NYStar News* October, 2003 "Grants and Donations" Section
- *The New York Times* June 6, 1999 "Computers for 'Star Wars' or Just the Stars"
- *The East Hampton Independent* March 31, 1999 "State of the Art at Southampton College"

Open Source Software Development

- *AdSCL* Available at `https://bitbucket.org/liebling/openadscl`
  A code to evolve a scalar field in spherically symmetric Anti de Sitter space and to examine the weakly turbulent cascade. The code uses a third-order accurate, Runge-Kutta method of lines method and decomposes the solution in terms of the eigenmode basis. The code is multithreaded for hetergeneous computing using OpenCL.

- *sdftool* Available at `http://bitbucket.org/liebling/sdftool`
  A distributed utility that reads in large datasets in SDF format and performs various calculations as directed by a user script. Data is read into various registers and the utility processes the data similar to a calculator would.
- *SDFapps* Available at `http://bitbucket.org/liebling/sdfapps`
  Various utilities to operate on data in SDF format. Examples include computing a Fourier power spectrum and extracting 1D slices of data.
- *HAD infrastructure* Available at `http://had.liu.edu/`
  Infrastructure for distributed (via MPI), adaptive-mesh-refinement (AMR) computations.

PUBLICATIONS

Google Scholar h-index: 38 Inspire HEP h-index: 35

In Preparation:

1. C. Palenzuela, **S.L. Liebling**, B. Miñano "Large Eddy Simulations of Mergers of Magnetized Neutron Stars with Neutrinos," In preparation.
2. A. Buchel, **S.L. Liebling**, "Charged Boson Stars from Gravitational Collapse," In preparation.
3. J. Estes, M. Kavic, **S.L. Liebling**, M. Lippert, J.H. Simonetti, "Magnetic Primordial Black Holes Interacting with Neutron Stars," In preparation.

Submitted:

4. S. Mukherjee, N.K. Johnson-McDaniel, W. Tichy, **S.L. Liebling**, "Conformally curved initial data for charged, spinning black hole binary on arbitrary orbits," `gr-qc/2202.12133` (2022)

Refereed Journal Articles:

5. M. Bezares, M. Bošković, **S.L. Liebling**, C. Palenzuela, P. Pani, E. Barausse, "Gravitational waves and kicks from the merger of unequal mass, highly compact boson stars," *Physical Review D* **105** 064067 (2022). `gr-qc/2201.06113`
6. N. Ortiz, F. Carrasco, S.R. Green, L. Lehner, **S.L. Liebling**, J.R. Westernacher-Schneider, "Gamma-radiation sky maps from compact binaries," *JCAP* **2022** 027 10.1088/1475-7516/2022/02/027 (2022) `asto-ph/2107.07020`
7. F. Benítez, R. Gambini, **S.L. Liebling**, J. Pullin, "Criticality in the collapse of spherically symmetric massless scalar fields in semi-classical loop quantum gravity," *Physical Review D* **104** 024008 (2021). `gr-qc/2106.00674`
8. W. E. East, L. Lehner, **S.L. Liebling**, C. Palenzuela, "Multimessenger signals from black hole-neutron star mergers without significant tidal disruption," `astro-ph/2101.12214` *ApJ Letters* **912** L18 (2021).
9. **S.L. Liebling**, C. Palenzuela, L. Lehner, "Effects of High Density Phase Transitions on Neutron Star Dynamics," *Classical and Quantum Grav.* **38** 10.1088/1361-6382/abf898 (2021). `gr-qc/2010.12567`
10. M. Kavic, **S.L. Liebling**, M. Lippert, J.H. Simonetti, "Accessing the axion via compact object binaries," *JCAP* **2020** 08, 005-005 10.1088/1475-7516/2020/08/005 (2020). `astro-ph/1910.06977`
11. **S.L. Liebling**, C. Palenzuela, L. Lehner, "Towards fidelity and scalability in non-vacuum mergers," *Classical and Quantum Grav.* **37** 135006 10.1088/1361-6382/ab8fcd (2020). `gr-qc/2002.07554`
12. F. Benítez, R. Gambini, L. Lehner, **S.L. Liebling**, J. Pullin, "Critical collapse of a scalar field in semiclassical loop quantum gravity," *Physical Review Letters* **124** 071301 (2020). `gr-qc/2002.04044`
13. **S.L. Liebling**, "Maxwell-dilaton dynamics," *Phys. Rev. D* **100** 104040 (2019). `gr-qc/1910.12644`
14. **S.L. Liebling**, M. Kavic, M. Lippert, "Probing Near-Horizon Fluctuations with Black Hole Binary Mergers," *JHEP* **176** 2018 (2018). `gr-qc/1707.02299`
15. E.W. Hirschmann, L. Lehner, **S.L. Liebling**, C. Palenzuela, "Black Hole Dynamics in Einstein-Maxwell-Dilaton Theory," *Physical Review D* **97** 064032 (2018). `gr-qc/1706.09875`

16. L. Sagunski, J. Zhang, M.C. Johnson, L. Lehner, M. Sakellariadou, **S.L. Liebling**, C. Palenzuela, D. Neilsen, "Neutron Star Mergers as a Probe of Modifications of General Relativity with Finite-Range Scalar Forces," *Phys. Rev. D* **97** 064016 (2018). gr-qc/1709.06634
17. C. Palenzuela, P. Pani, M. Bezares, V. Cardoso, L. Lehner, **S.L. Liebling**, "Gravitational Wave Signatures of Highly Compact Boson Star Binaries," *Phys. Rev. D* **96** 104058 (2017). gr-qc/1710.09432
18. LIGO Scientific and Virgo and Fermi GBM and INTEGRAL and IceCube and IPN and Insight-Hxmt and ANTARES and Swift and Dark Energy Camera GW-EM and DES and DLT40 and GRAWITA and Fermi-LAT and ATCA and ASKAP and OzGrav and DWF and AST3 and CAASTRO and VINROUGE and MASTER and J-GEM and GROWTH and JAGWAR and CaltechNRAO and TTU-NRAO and NuSTAR and Pan-STARRS and MAXI and TZAC and KU and Nordic Optical Telescope and ePESSTO and GROND and Texas Tech University and TOROS and BOOTES and MWA and CALET and IKI-GW Follow-up and H.E.S.S. and LOFAR and LWA and HAWC and Pierre Auger and ALMA and Pi of Sky and DFN and ATLAS and High Time Resolution Universe Survey and RIMAS and RATIR and SKA South Africa/MeerKAT Collaborations and AstroSat Cadmium Zinc Telluride Imager Team and AGILE Team and 1M2H Team and Las Cumbres Observatory Group and SALT Group and Euro VLBI Team and Chandra Team at McGill University, "Multi-messenger Observations of a Binary Neutron Star Merger," *The Astrophysical Journal Letters* **848** L12 (2017). astro-ph/1710.05833
19. **S.L. Liebling**, C. Palenzuela, "Dynamical Boson Stars," *Living Rev. Relativity* **20** no. 1 (2017). Major update of an invited review article. `gr-qc/1202.5809v3`
20. G. Khanna, **S.L. Liebling**, "Scalar Collapse in AdS with an OpenCL, open source code," *Classical and Quantum Grav.* **34** 205012 (2017). `gr-qc/1706.07413`
21. **S.L. Liebling**, C. Palenzuela, "Electromagnetic Luminosity of the Coalescence of Charged Black Hole Binaries," *Physical Review D* **94** 064046 (2016). `gr-qc/1607.02140`
22. L. Lehner, **S.L. Liebling**, C. Palenzuela, O.L. Caballero, E. O'Connor, M. Anderson, D. Neilsen, "Unequal mass binary neutron star mergers and multimessenger signals," *Classical and Quantum Grav.* **33** 184002 (2016). `gr-qc/1603.00501` Part of focus issue: Rattle and shine: the signals from compact binary mergers.
23. L. Lehner, **S.L. Liebling**, C. Palenzuela, P. Motl, "The $m = 1$ instability & gravitational wave signal in binary neutron star mergers," *Physical Review D* **94** 043003 (2016). `gr-qc/1605.02369`
24. C. Palenzuela, **S.L. Liebling**, "Constraining scalar-tensor theories of gravity from the most massive neutron stars," *Physical Review D* **93** 044009 (2016). `gr-qc/1510.03471`
25. S.R. Green, A. Maillard, L. Lehner, **S.L. Liebling**, "Islands of stability and recurrence times in AdS," *Physical Review D* **92** 084001 (2015). `gr-qc/1507.08261`
26. C. Palenzuela, **S.L. Liebling**, D. Neilsen, L. Lehner, O.L. Caballero, E. O'Connor, M. Anderson, "Effects of the microphysical Equation of State in the mergers of magnetized Neutron Stars With Neutrino Cooling," *Physical Review D* **92** 044045 (2015). `gr-qc/1505.01607` Featured in the *Kaleidoscope* section of *PRD*.
27. V. Balasubramanian, A. Buchel, S.R. Green, L. Lehner, **S.L. Liebling**, "Reply to 'Comment on two-mode stability islands around AdS,' " *Physical Review Letters* **115** 049102 (2015). `gr-qc/1506.07907`
28. A. Buchel, S.R. Green, L. Lehner, **S.L. Liebling**, "Conserved quantities and dual turbulent cascades in Anti-de Sitter spacetime," *Physical Review D* **91** 064026 (2015). `gr-qc/1412.4761`
29. V. Balasubramanian, A. Buchel, S.R. Green, L. Lehner, **S.L. Liebling**, "Holographic Thermalization, Stability of AdS, and the FPU Paradox," *Physical Review Letters* **113** 071601 (2014). `gr-qc/1403.6471`
30. M. Ponce, C. Palenzuela, L. Lehner, **S.L. Liebling**, "Interaction of misaligned magnetospheres in the coalescence of binary neutron stars," *Physical Review D* **90** 044007 (2014). `gr-qc/1404.0692`
31. D. Neilsen, **S.L. Liebling**, M. Anderson, L. Lehner, E. O'Connor, C. Palenzuela, "Magnetized Neutron Stars With Realistic Equations of State and Neutrino Cooling," *Physical Review D* **89** 104029 (2014). `gr-qc/1403.3680` Featured in the Kaleidoscope section of *PRD*.
32. C.L. Wainwright, M.C. Johnson, H.V. Peiris, A. Aguirre, L. Lehner, **S.L. Liebling**, "Simulating the universe(s): from cosmic bubble collisions to cosmological observables with numerical relativity," *JCAP* **1403** 030 (2014). `gr-qc/1312.1357`
33. Andersson, N., et al, "The Transient Gravitational-Wave Sky," *Classical and Quantum Gravity* **30** 193002 (2013). `gr-qc/1305.0816`

34. C. Palenzuela, L. Lehner, **S.L. Liebling**, M. Ponce, M. Anderson, D. Neilsen, P. Motl, "Linking electromagnetic and gravitational radiation in coalescing binary neutron stars", *Physical Review D* **88** 043011 (2013). gr-qc/1307.7372
35. C. Palenzuela, L. Lehner, M. Ponce, **S.L. Liebling**, M. Anderson, D. Neilsen, P. Motl, "Electromagnetic and gravitational outputs from binary neutron-star coalescence", *Physical Review Letters* **111** 061105 (2013). gr-qc/1301.7074
36. A. Buchel, **S.L. Liebling**, and L. Lehner. "Boson Stars in AdS." *Physical Review D* **87** 123006 (2013). gr-qc/1304.4166
37. **S.L. Liebling**, "Nonlinear Collapse in the Semilinear Wave Equation in AdS," *Physical Review D* **87** 081501R (2013). gr-qc/1212.6970
38. A. Buchel, L. Lehner, and **S.L. Liebling**, "Scalar Collapse in AdS," *Physical Review D* **86** 123011 (2012). gr-qc/1210.0890
39. L. Lehner, C. Palenzuela, **S.L. Liebling**, C. Thompson, C. Hanna, "Intense Electromagnetic Outbursts from Collapsing Hypermassive Neutron Stars," *Phys. Rev. D* **86** 104035 (2012). gr-qc/1112.2622
40. **S.L. Liebling**, C. Palenzuela, "Dynamical Boson Stars," Invited review article. *Living Rev. Relativity* 15, (2012). http://www.livingreviews.org/lrr-2012-6 gr-qc/1202.5809
41. D. Neilsen, L. Lehner, C. Palenzuela, E.W. Hirschmann, **S.L. Liebling**, P.M. Motl, T. Garrett, "Boosting jet power in black hole spacetimes," *Proceedings of the National Academy of Sciences* **108**, (2011). arXiv:1012.5661
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Researchers Supervised

Neel Iyer	*Bronx H.S. of Science*	Spring, 2020–Fall, 2021
Abraham Franchetti	*Paul D. Schreiber H.S.*	Fall, 2019
Thomas Satchwell	*Undergraduate*	Fall, 2019–Spring, 2020
Allon Pevzner	*Paul D. Schreiber H.S.*	Summer, 2018 (Software publicly available)
Aracely Garcia	*Undergraduate*	Spring, 2018
Alessandro Tripoli	*Undergraduate*	Summer, 2017–Spring, 2018
Nikko Falcone	*Manhasset H.S.*	Summer, 2017
Sean Evans	*Undergraduate*	Fall, 2016–Spring 2017
Alexandra Lynn	*Undergraduate*	Spring, 2016–2017
Dylan Langone	*Paul D. Schreiber H.S.* Regeneron STS semifinalist	Summer, 2016 (Software publicly available)
Trevor Rodowicz	*Undergraduate*	Spring, 2016
Christopher Wilson	*Paul D. Schreiber H.S.*	Summer, 2014 (Software publicly available)
Louis Pisha	*Undergraduate*	Summers, 2010–2012
Erik Raessler	*Undergraduate*	October 2010–January 2011
Tanvir Rahman	*Postdoctoral*	October 2005–July 2006
Jason Williams	*Undergraduate*	2004–2006 (Software publicly available)
Nina Jansen	*Postdoctoral*	August 2004–August 2005

References

Luis Lehner
Professor & Deputy Faculty Chair
Perimeter Institute for Theoretical Physics
31 Caroline Street North
Waterloo, Ontario Canada N2L 2Y5
Voice: (519) 569-6571
Fax: (519) 569-7611
Email: `llehner@perimeterinstitute.ca`
https://www.perimeterinstitute.ca/people/luis-lehner

James (Jim) Isenberg
Professor
Department of Mathematics
University of Oregon
Eugene, OR 97403
Voice: (541) 346-4715
Fax: (541) 346-5217
Email: `isenberg@uoregon.edu`
`http://pages.uoregon.edu/isenberg/`

Jorge Pullin
Professor
Department of Physics & Astronomy
Louisiana State University
Baton Rouge, Louisiana 70803-4001
Voice: (225) 578-0464
Fax: (225) 578-0464
Email: `pullin@lsu.edu`
`http://www.phys.lsu.edu/faculty/pullin/`

Frans Pretorius
Professor
Department of Physics
Princeton University
Princeton, NJ 08544
Voice: (609) 258-5858
Email: `fpretori@princeton.edu`
`http://physics.princeton.edu/~fpretori`